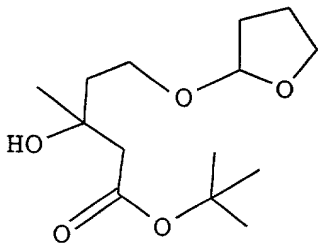
CLAIMS

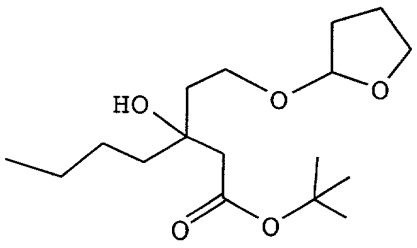
1. A chemically amplified resist composition comprising a base resin reacting in the presence of an acid, a photo acid generator generating an acid upon exposure, and a compound having the combination of an acetal moiety and a site which is eliminated by an acid in its molecule.

2. The chemically amplified resist composition of claim 1, wherein said compound has the acetal moiety and the site eliminated by an acid at locations such that a final product containing a ring structure can be produced through reactions in the presence of the acid.

3. The chemically amplified resist composition of claim 2, wherein said compound is represented by the formula:



or



4. The chemically amplified resist composition of claim 1, wherein said base polymer is a homopolymer of an acrylate or methcrylate monomer or a copolymer of two or more of such monomers, a polymer of cycloolefin monomer, or a hybrid polymer of an acrylate or methacrylate monomer and a cycloolefin monomer.

5. The chemically amplified resist composition of

claim 2, wherein said base polymer is a homopolymer of an acrylate or methcrylate monomer or a copolymer of two or more of such monomers, a polymer of cycloolefin monomer, or a hybrid polymer of an acrylate or methacrylate monomer and a cycloolefin monomer.

6. The chemically amplified resist composition of claim 1, wherein said base resin is a copolymer of 2-methyladamantyl methacrylate and gamma-butyrolactone methacrylate.

7. The chemically amplified resist composition of claim 2, wherein said base resin is a copolymer of 2-methyladamantyl methacrylate and gamma-butyrolactone methacrylate.

8. A chemically amplified resist composition comprising a base resin, which is a copolymer having the combination of an acetal moiety and a site eliminated by an acid in one repeating unit and reacts in the presence of an acid, and a photo acid generator generating an acid upon exposure.

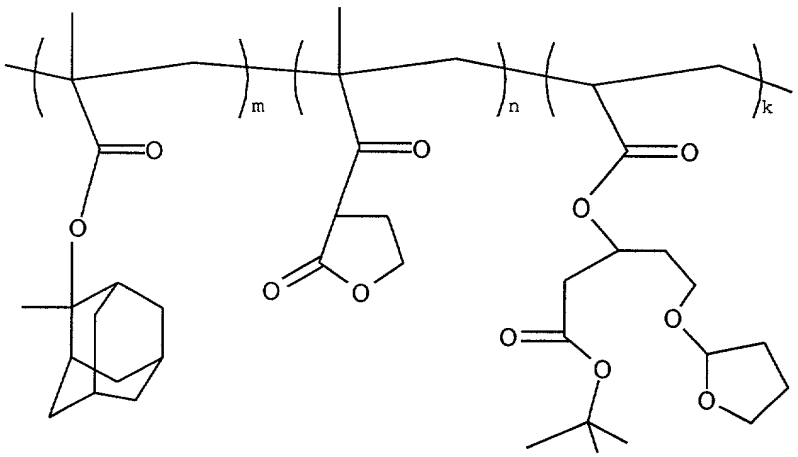
9. The chemically amplified resist composition of claim 8, wherein said repeating unit has the acetal moiety and the site eliminated by an acid at locations such that a final product containing a ring structure can be produced through reactions in the presence of the acid.

10. The chemically amplified resist composition of claim 8, wherein said copolymer has, in addition to said repeating unit, a repeating unit derived from an acrylate or methacrylate monomer, or a repeating unit derived from a cycloolefin monomer, or a combination of repeating units derived from an acrylate or methacrylate monomer and a cycloolefin monomer.

11. The chemically amplified resist composition of claim 9, wherein said copolymer has, in addition to said repeating unit, a repeating unit derived from an acrylate or methacrylate monomer, or a repeating unit derived from a cycloolefin monomer, or a combination of repeating

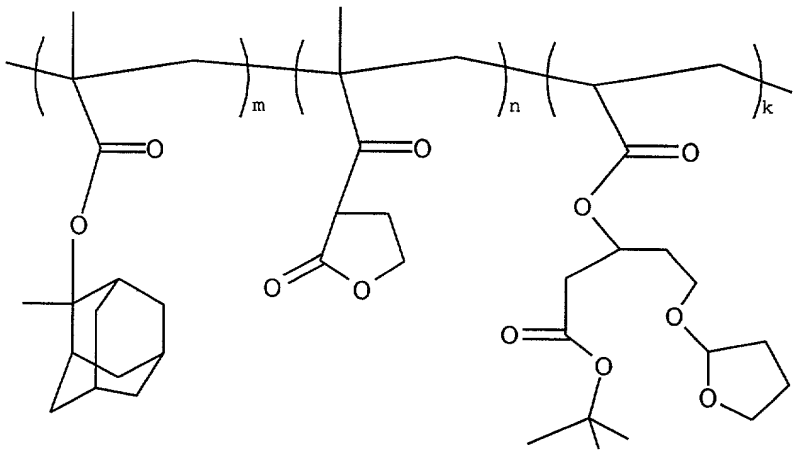
units derived from an acrylate or methacrylate monomer and a cycloolefin monomer.

12. The chemically amplified resist composition of claim 8, wherein said copolymer is represented by the formula:



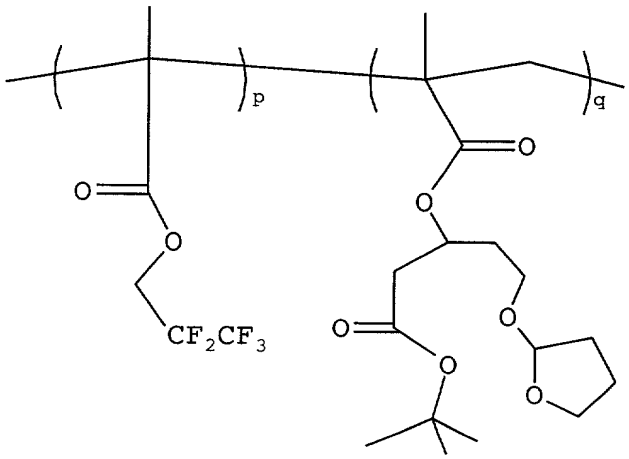
wherein m, n, and k are positive integers.

13. The chemically amplified resist composition of claim 9, wherein said copolymer is represented by the formula:



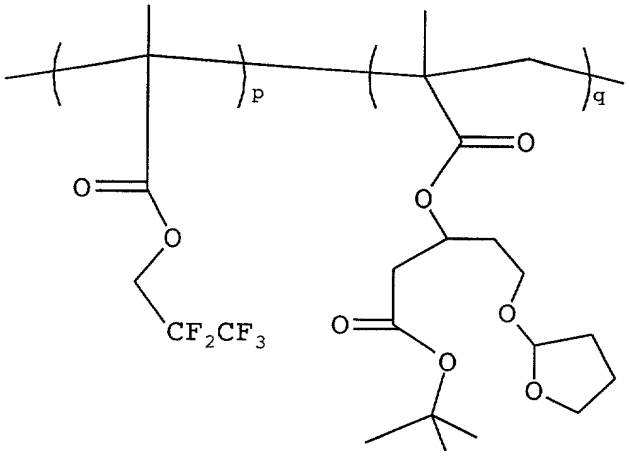
wherein m, n, and k are positive integers.

14. The chemically amplified resist composition of claim 8, wherein said copolymer is represented by the formula:



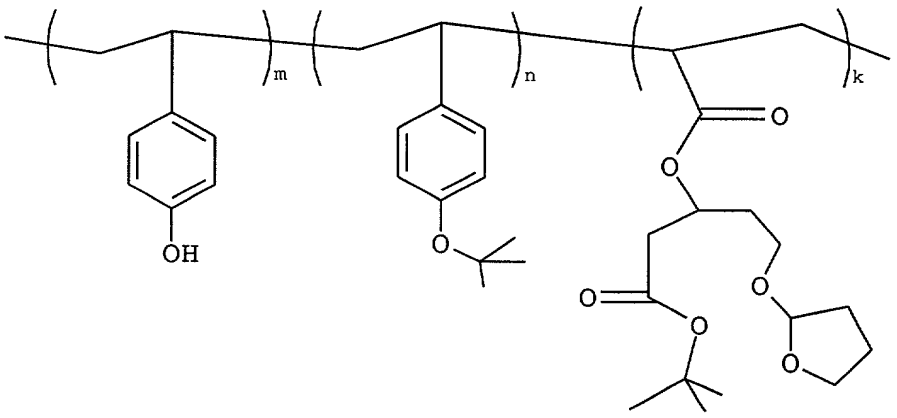
wherein p and q are positive integers.

15. The chemically amplified resist composition of claim 9, wherein said copolymer is represented by the formula:



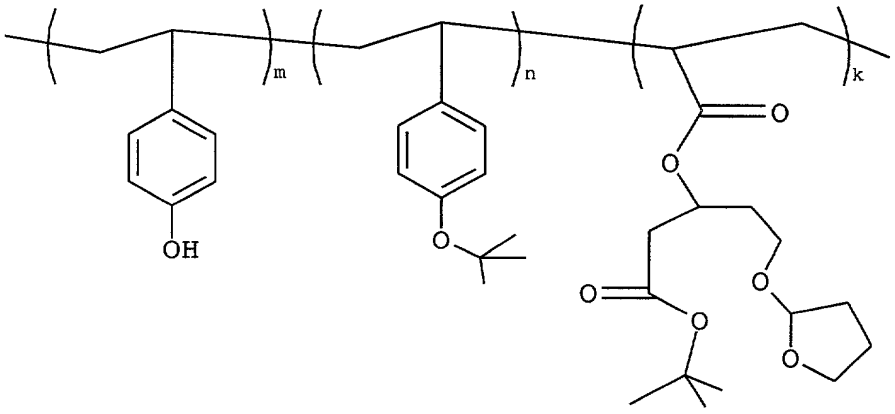
wherein p and q are positive integers.

16. The chemically amplified resist composition of claim 8, wherein said copolymer is represented by the formula:



wherein m, n, and k are positive integers.

17. The chemically amplified resist composition of claim 9, wherein said copolymer is represented by the formula:



wherein m, n, and k are positive integers.

18. The chemically amplified resist composition of claim 8, wherein said copolymer is free of aromatic rings.

19. The chemically amplified resist composition of claim 9, wherein said copolymer is free of aromatic rings.

20. A method for forming a patterned film by applying a resist material to a film provided on the surface of a substrate, to form a resist layer, pre-baking the resist layer, selectively exposing the pre-

baked resist layer to a radiation, post-baking the exposed resist layer, developing the post-baked resist layer to form a resist pattern, and patterning the film underlying the resist pattern by the use of the resist pattern as a mask, wherein the chemically amplified resist composition of claim 1 is used as the resist material.

21. A method for forming a patterned film by applying a resist material to a film provided on the surface of a substrate, to form a resist layer, pre-baking the resist layer, selectively exposing the pre-baked resist layer to a radiation, post-baking the exposed resist layer, developing the post-baked resist layer to form a resist pattern, and patterning the film underlying the resist pattern by the use of the resist pattern as a mask, wherein the chemically amplified resist composition of claim 8 is used as the resist material.

22. The method of claim 20, wherein said radiation is an excimer laser beam, X-rays, or an electron beam.

23. The method of claim 21, wherein said radiation is an excimer laser beam, X-rays, or an electron beam.

24. The method of claim 20, wherein said radiation is an ArF excimer laser beam or vacuum ultraviolet light having a shorter wavelength.

25. The method of claim 21, wherein said radiation is an ArF excimer laser beam or vacuum ultraviolet light having a shorter wavelength.